
STREPTOCOCCAL INVASIVE DISEASE

Group A *Streptococcus* or *Streptococcus pneumoniae*

Clinical Features: Symptoms vary and are dependent on the site of infection (e.g. acute otitis media, pneumonia, bacteremia, or meningitis). Group A infections are characterized by sudden onset of fever, shaking chill, pleural pain, dyspnea, tachypnea, and leukocytosis. Infants and young children may experience fever, vomiting, and convulsions.

Causative Agent: Group A *Streptococcus* (*Streptococcus pyogenes*) or *Streptococcus pneumoniae*

Mode of Transmission: The organisms may spread directly via respiratory droplets and oral contact. Contact with articles (e.g. tissues) that have been freshly soiled with respiratory discharges may result in indirect transmission. Although the bacteria that cause invasive disease are commonly transmitted from person-to-person, invasive disease is not. Invasive illness among a patient's close and casual contacts is infrequent.

Incubation Period: 14 hours to 3 days. (The incubation period is not clearly defined; it may be dependent on the route of infection.)

Period of Communicability: Untreated patients are most infectious for 2-3 weeks after the illness onset, although transmission may occur until the bacteria are no longer found in respiratory secretions. Patients are not considered infectious 24 hours after treatment has begun.

Public Health Significance: School and day care exclusions apply to those with streptococcal pharyngitis or skin infections. Most types of pneumococcal disease (invasive *Streptococcus pneumoniae* infections) can be prevented through vaccination.

Reportable Disease in Kansas Since: All cases of Streptococcal invasive disease have been reportable since 2000; previously, only drug-resistant strains of *Streptococcus pneumoniae* were reportable.

Laboratory Criteria for Surveillance Purposes

- Isolation of Group A *Streptococcus* (*Streptococcus pyogenes*) or *Streptococcus pneumoniae* by culture from a normally sterile site (e.g., blood, cerebrospinal fluid, joint, pleural, or pericardial fluid).

Surveillance Case Definitions

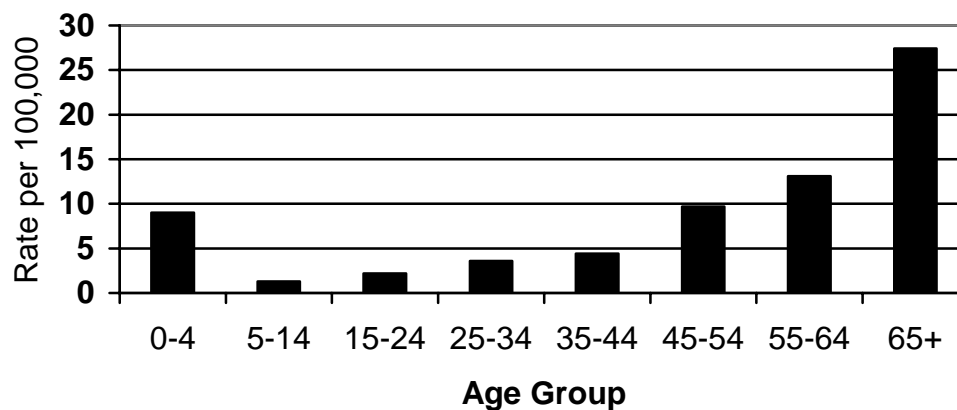
- **Confirmed:** A clinically compatible case that is laboratory confirmed.

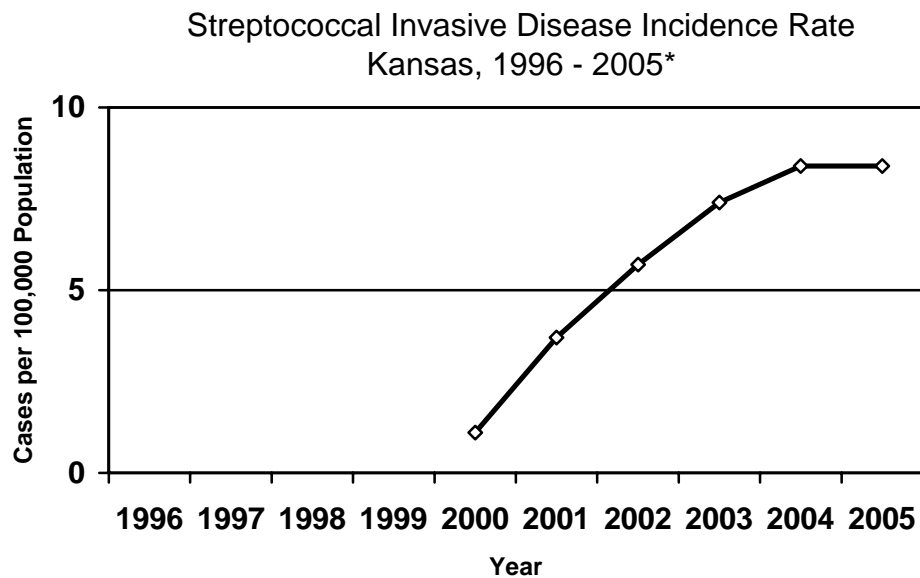
Epidemiology and Trends

2005 Kansas Count: 231

	<i>Rate per 100,000</i>	<i>95% CI</i>
Kansas Rate	8.4	(7.3 - 9.5)
U.S. Rate (2004)	NA	NA
<i>Gender</i>		
Male	8.2	(6.7 - 9.7)
Female	8.5	(7.0 - 10.0)
<i>Race</i>		
White	5.9	(5.0 - 6.9)
Black	11.0	(6.0 - 15.9)
Asian/Pacific Islander	3.2	(0.0 - 7.7)
Native American	3.3	(0.0 - 9.6)
<i>Ethnicity</i>		
Hispanic	4.1	(1.4 - 6.8)
Non-Hispanic	3.7	(2.9 - 4.4)
<i>Geographic area</i>		
Urban County	9.8	(8.2 - 11.5)
Non-Urban County	6.9	(5.5 - 8.3)

Streptococcal invasive disease rate by age group,
Kansas, 2005





*A comparable U.S. rate is not available.

In 2005, 231 cases of streptococcal invasive disease were reported (8.4 cases per 100,000 population), an increase of only 3 cases from the previous year (8.4 cases per 100,000 population). The three-year median from 2002-2004 was 200 cases. This marks the first year that the incidence rate has not risen since 2000, when the current case definition was established. The Kansas rate cannot be compared to a national rate due to a difference in case definition; unlike Kansas, the CDC monitors the rate of invasive, drug-resistant *Streptococcus pneumoniae* infections, invasive *S. pneumoniae* infections among those less than five years of age, and invasive Group A *Streptococcus* infections. Kansas' reporting requirements will be changed to reflect the national guidelines in 2006.

The 231 cases of streptococcal invasive disease were comprised of 40 Group A *Streptococcus* infections and 191 *S. pneumoniae* infections. Of the 191 *S. pneumoniae* infections, 7 were cases of meningitis.*

As in previous years, the rate of disease was higher among those residing in an urban county (9.8 per 100,000 residents) compared to those residing in non-urban counties (7.9 per 100,000 residents). Urban county residents accounted for 137 (59%) of streptococcal invasive disease cases. Although the total number of African-Americans affected by streptococcal invasive disease in 2004 was low (19 cases), the disease incidence rate among African-Americans was high (11.0 per 100,000 population) compared to Whites (5.9 per 100,000 population). This reflects national trends; in the United States, the risk of bacteremia is higher among non-Whites.†

* These 7 cases are also counted as cases of non-meningococcal, non-HiB bacterial meningitis. See the section titled "Meningitis, Other Bacterial".

† CDC. Prevention of pneumococcal disease: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1997;46(No. RR-8):1--24.

Pneumococcal vaccine is recommended for adults age 65 and older. Analysis of the 2005 data showed that 79 *S. pneumoniae* cases (43%) belonged to this age group. A similar percentage (49%) from this age group was reported in 2004. The vaccination status of these cases is unknown; the pneumococcal vaccination rate among Kansans age 65 and older is 65.8%, according to the 2005 Kansas Behavioral Risk Factor Surveillance System (BRFSS). This is a slight increase from the 62.5% pneumococcal vaccination rate that was reported by the BRFSS in 2004.